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(71) Applicant: **NISHIDA SHIGEO HITACHI CABLE LTD**

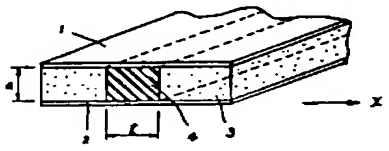
(72) Inventor: **NISHIDA SHIGEO**
YONEYAMA TSUTOMU
MIKOSHIBA KOICHI

(54) **DIELECTRIC LINE**

(57) Abstract:

PURPOSE: To suppress radiation at a curved and a discontinuous part by providing a dielectric strip as a line for an IC of a milliwave band between conductor flat plates arranged in parallel, specifying an interval between those conductor flat plates, and establishing an electromagnetic wave electric field in parallel to the conductor flat plates.

CONSTITUTION: Metallic flat plates 1 and 2 are arranged in parallel at an interval (a), and their gap is filled with a dielectric medium 3; and a dielectric strip 4 which has a greater dielectric constant than the medium 3 is inserted. The interval (a) is set to 21/2 as long as the wavelength of an electromagnetic wave in the medium 3, and when an electromagnetic wave polarized in parallel to the flat plate 1 and 2 is propagated, its propagation energy is nearly confined in the strip 4 and propagated. The inequalities hold, where (t) is the width of the strip 4 and λ_0 is the propagation wavelength of the electromagnetic wave in the medium 3; and λS_0 and λS_1 are the propagation wavelenth of a fundamental wave in TM mode propagating along the strip 4 when (a) is ∞ and that of the 1st higher wave. Thus, the generation of higher waves is suppressed at the curved and discontinuous parts of the strip 4.



$\sqrt{\varepsilon_r - 1}\,\frac{t}{\lambda_0} < 0.5$ のとき $\frac{\lambda_0}{2} > a > \frac{\lambda S_0}{2}$ で，

$\sqrt{\varepsilon_r - 1}\,\frac{t}{\lambda_0} > 0.5$ のとき $\frac{\lambda S_1}{2} > a > \frac{\lambda S_0}{2}$ で